



A GOOD HOME-MADE ROLLER

BY A LITTLE INGENUITY MANY USEFUL AND NECESSARY FARM TOOLS CAN BE CHEAPLY MADE.

By J. W. Griffin.

To make a good roller at the cost of \$7 or \$8, take four old mowing machine wheels all of one size. Use the axles of the machines for the roller shafts.

Break off the lugs on the rim of the wheels, then have your blacksmith drill 1/2-inch holes 4 inches apart. For the drum or roller staves use 2x4-inch scantlings cut to 3-foot lengths, bore 1/2-inch holes in these near each end to make the ends even with the edge of the rim of the wheel.

Bolt these onto the wheel, using washers under the heads of the bolts and the nuts against the inside of the rim of the wheel.

The piece of scantling should be beveled slightly, so as to fit closely against the rim of the wheel. Now, we are ready for the frame, which should be of 2x4-inch stuff. Cut two pieces which should be 7 1/2 feet long. Two inches from each end cut a 1x3-inch mortise. In the center of each of these pieces cut a 2x4-inch notch

for the tongue to rest in. Cut the end pieces long enough to clear the rollers when the frame is put together. Cut tenons on each end of these pieces to fit the mortises in front and rear pieces of the frame.

Have the blacksmith make four corner irons with four holes in each 1/2-inch; pin corners securely, then

put corner irons on and tighten up the bolts.

If you can find four old machine bearings that will fit the roller shafts, bolt to under sides of frame as shown in cut; if not, make some out of hard wood. The wooden boxings—lay two pieces of 2x4-inch hard wood together, clamp them and bore a hole about 3/32 of an inch larger than the roller shaft. Let the worm of the auger run directly between them, so one-half of the hole will be in each piece.

Putting rollers and frame together—place the shaft in each roller and make fast by means of a set screw in the hub of each wheel; the shafts should turn in the boxings, not the wheels on the shafts.

Now place the frame over the rollers and adjust to proper position, that is, have the space around the rollers between them and the frame the same distance at all places.

Raise the roller frame slightly and slip in place the upper half of each boxing; let down frame on shaft, put lower half of boxings in place, then bore holes through the frame 2 1/2 inches from the shaft, and bolt all together with 3/4-inch bolts.

You see by the cut that the tongue forms the centerpiece for frame. Brace the tongue with two pieces of old wagon tire three feet long, put in proper shape with a 3/4-inch bolt, fastening it to the tongues and frame. Attach an old mowing machine seat to the rear of tongue to balance the neck yoke when the driver is seated. Make three or four holes for fastening seat to frame so the seat may be regulated to agree with the weight of the driver.

Bore a 1/4-inch hole in frame directly over each boxing for an oil-hole for the same.

Paint the whole thing, rollers and all, and keep in the dry when not in use and it will last twenty-five or more years.

Do not use it when the soil is wet. A roller is only to pack dry soil or to crack hard dry clods so they will pulverize when rained upon.

FARMERS COMING TO THEIR SENSES.

It is a most gratifying fact, though not generally known, that during the past 12 years the co-operative movement among farmers has grown so rapidly that there are now \$75,000 economic associations with a membership considerably over 3,000,000.

There are but 6,100,000 farms in cultivation and in this number more than one-half are represented in these co-operative associations. Among the great number of co-operative associations are insurance companies against fire, injury and death to live stock. These insurance companies will not have over 2,000,000 stockholders.

For the most part they are well managed and have accumulated a surplus which is large for safeguarding of the interest of the stockholders and for the payment of losses.

The 3,000,000 farmers in the co-operative associations are bonded in

associations large and small for economic manufacturing of butter, cheese-making, irrigation, the warehousing of grain and cotton and the building of telephone lines.

Perhaps the greatest benefit comes from co-operation by selling. Suppliers are bought wholesale at often manufacturers' prices and selling is conducted through organizations whose business methods are yearly adding millions of dollars to the profits of the farmers.

The profits of the past 10 years are not alone the cause of the prosperous condition of agriculture. To the good sense farmers in organizing their business along economic lines and subordinating individual homes for the good of the whole is really the greatest factor in the general prosperity.

While full grown pigeons find a ready market it is the five-week-old squab that is most in demand.

THE APPLE--FROM TREE TO MARKET

A FEW VERY EXCELLENT HINTS REGARDING HOW AND WHEN TO PICK, SORT AND PACK, THIS FRUIT.

No set rule can be given for the time to pick apples, as that will vary according to variety, season and distance to be shipped. As a rule we gauge the time to pick red apples by their color and yellow apples by the cracking of their seeds. Some varieties, for instance, Northern Spy, are generally left quite late in the season before picking. On the other hand, great care must be taken with Jonathans to pick them before they are overripe, or there is danger from core-rot. Red Astrachans, if left on the tree, tend to crack, and so on.

Early apples, as a rule, especially those to be sent any distance, are harvested before they are thoroughly ripe. Spitzenburg, and apples like them, should be picked as soon as they have the proper color. This means, in ordinary cases, several pickings to a tree, but only in this way can you get the best results.

Every day the fruit is left on the tree, after it has assumed its color it approaches just so much nearer its final maturity and deteriorates to a marked degree in its shipping and keeping qualities, then again, when the tree is relieved of part of its load, it gives the remaining fruit a better chance to become large and well colored.

The apple does not go into abrupt stages of its life history from the green apple to the natural broken-down specimen. The change is a gradual one. The most vital point in the whole life history, is the picking time.

To get the best return in the manner of keeping, we must handle the apples as though they were eggs, and use every precaution not to bruise, and more especially, not to cut the skin of the apple so as to expose it to the germs of the decay that will surely enter through any abrasion in the skin.

The apple should be picked by a twist of the wrist, giving either a slight upward or downward motion each time. If picked in this way, no stems will be pulled out. In fact if the apple does not come readily when it is tried, it is a pretty good indication

that the fruit is not ready to be picked.

The best days for gathering fruit are the cool, dry days. Picking during excessive heat, or exposing the fruit to heavy rains, are not conducive to good handling. Where the fruit is picked on a cool, dry day it is better to get it under cover at once; but

when occasion demands that we pick the fruit in warm weather, it will be better to leave it out-of-doors overnight, allowing it to become cool before taking it under cover, using every precaution to prevent heavy sweating of the fruit.

The days of piling the fruit in the orchard in great heaps, or even leaving it in boxes or barrels for several days are gone forever and cannot be resorted to by those who care to handle choice fruit. It pays to wipe the fruit before packing, the market demands it and is willing to pay for it.

Where apples are to be wiped, this must be done soon after they are picked.

The packing table is a most important item. The best table is made to accommodate two packers. To make such a table take four standards about 3 feet high. The top made of strong burlap about three or four feet is allowed to hang rather loosely, therefore, saw off the tops of the legs or level so as not to have the sharp corners push into the butler making points that will bruise or cut the fruit. Old hose-pipe is generally nailed around the top of the table to protect the fruit. The legs should be well braced, as they must support a heavy load.

The surface of the table should not be greater than three by four feet, as anything larger would not allow two packers to reach all points of it without unnecessary stretching.

Never heap the fruit in immense piles, nor stack bins, as such methods invite sweating and bruising in handling; but preferably use field boxes, having end cleats, so they can be piled one on top of the other, allowing good ventilation.

It costs money to step on a ladder, as the orchard owner soon finds, and all that can be reasonably done by pruning to start the head of a tree low, and keep it low, is a paying investment.

Any ladder which must be set against a tree is a constant menace. Perhaps the best type of tall step-ladder is the extension ladder. It is strong, light and easily handled by one man. The lightest of all the tall ladders is the single rail ladder, but it is also the least safe and comfortable for the user.

In the matter of picking receptacles, buckets and bags each have their ad-

vocates and some people even provide their pickers with coal scuttles. These should never be used, because the fruit is almost certain to be bruised by them.

Perhaps the best bag now in use is that made in the shape of an apron with the lower ends turned up in the form of a bag and which is suspended by the strap around the neck. This allows the bag to hang down in front, leaving both hands free. It should be made so shallow that the first apples can be conveniently laid in it without dropping, and yet hold all the picker can carry. Another great advantage is that it cannot be emptied by pouring unless the picker stands on his head.

Give the picker the suggestion as a hypnotist would do, that he is not handling apples, but eggs, and this bag will help him live up to the suggestion.

For hauling to the packing-house, the fruit should be emptied into field boxes, each having a slot for the hand out in each end, with the ends higher than the sides to permit packing without bruising the fruit. These boxes should be hauled to the packing-house on a low spring orchard wagon.

The packing table is a most important item. The best table is made to accommodate two packers. To make such a table take four standards about 3 feet high. The top made of strong burlap about three or four feet is allowed to hang rather loosely, therefore, saw off the tops of the legs or level so as not to have the sharp corners push into the butler making points that will bruise or cut the fruit. Old hose-pipe is generally nailed around the top of the table to protect the fruit. The legs should be well braced, as they must support a heavy load.

The surface of the table should not be greater than three by four feet, as anything larger would not allow two packers to reach all points of it without unnecessary stretching.

Never heap the fruit in immense piles, nor stack bins, as such methods invite sweating and bruising in handling; but preferably use field boxes, having end cleats, so they can be piled one on top of the other, allowing good ventilation.

It costs money to step on a ladder, as the orchard owner soon finds, and all that can be reasonably done by pruning to start the head of a tree low, and keep it low, is a paying investment.

Any ladder which must be set against a tree is a constant menace. Perhaps the best type of tall step-ladder is the extension ladder. It is strong, light and easily handled by one man. The lightest of all the tall ladders is the single rail ladder, but it is also the least safe and comfortable for the user.

In the matter of picking receptacles, buckets and bags each have their ad-

GOING AFTER WINTER EGGS

A FEW SIMPLE SUGGESTIONS THAT WILL BRING GOOD RESULTS IF CARRIED OUT.

By W. W. Storms.

The laying hen is usually searching for what she needs to make eggs. She takes what she wants in the way of food and lets the rest alone.

If you compel her to take what she doesn't want or take nothing, why of course she will take what you provide, rather than starve to death, but she won't lay as many eggs.

Therefore, we like the hopper method of feeding. We always provide finely cracked corn, hung on the wall just high enough so the hens can eat what they want without wasting it on the floor.

A better method is to provide a platform 16 inches or so above the floor, so the fowl can jump up and down for the feed and water they desire, and then go back to the litter to work for the grain that is scattered in it.

In one apartment of the self-feeder is grit; another, charcoal; another, oyster shells; another, equal parts of finely cracked corn, hung on the wall; in another, beet-scrap, in still another is placed dry bran.

You might think that the hens will eat too much, but they won't; they will eat only what they want.

When you find a hen that lives off of the feeder and gets fat and lazy, she is usually too lazy to work and too lazy to lay eggs and better be sent to the butcher.

Scatter the whole grain, such as wheat, barley and corn in the litter. Feed them whole corn at night, especially on cool nights. They need a cropful to keep up the bodily heat overnight.

Give them table-scrap and green food at noon. For green food we use cabbages, mangel-wurtzels, sugar-beets, chopped apples, etc. Onions are also relished, but they are liable to flavor the eggs.

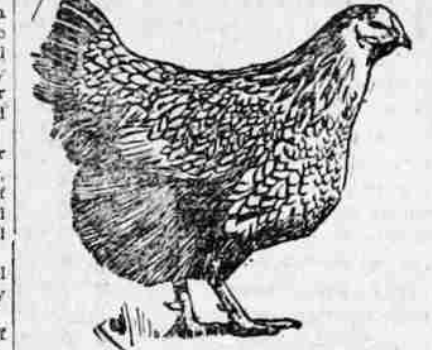
Noon is also a good time to feed green cut bone. Give them a little every other day, and only what they will eat up clean.

It is a rich food, a great egg-producer, and a little will go a long way. If you notice a looseness of the

bezeels after feeding it, cut down the amount.

Keep them always eager and their appetites sharp for fresh meat and cut bone, and you will get all the eggs you can expect.

Once in awhile we feed a mash in the morning composed of bran, middlings, beet-scrap, etc., mixed with a little milk or water. It must not be wet and sloppy, but dry and crumbly. Feed them only what they will eat up quickly and clean. They shouldn't be allowed to trample on any that is



This Hen Layed 198 Eggs in One Year.

left over, or to leave any to become sour and foul.

Fowls should have plenty of fresh water, and we never warm it. They like a cool, fresh drink the same as we do.

Provide a dust-bath so they may help to rid themselves of lice. Use plenty of liquid louse-killer and keep the whole pen scrupulously clean.

If a variety of food is given there is no need of fear about plenty of eggs. Do not feed whole grain in hoppers. Only the ground food, beet-scrap and bran is fed there.

If these simple suggestions are carried out, consistent with your local conditions, the hens will do the rest.

Two dozen eggs every day will be just like finding 50 cents in change in the nest, according to our prices for fresh eggs in the local market.

GROWING A MULCH IN THE STRAWBERRY BED.

By H. E. Gristead, Missouri.

Where straw is readily obtainable it is difficult to spread properly over the strawberry plants so that it will be thick enough yet not smother the plants or require raking off in the spring.

A mulch of oats or sorghum is the best thing I know of that may be sown between the rows.

Oats alone has been tried, but from the fact that we often have a very dry fall it has not always made a satisfactory growth before frost.

Sorghum or Kaffir corn are dry weather plants and if there is sufficient moisture in the soil to germinate the seed they will grow till frost.

A good plan is to sow oats and sorghum or oats and Kaffir corn in mixture and thick enough so that it will not be coarse.

As soon as it is killed by the frost

the sorghum will fall making an ideal mulch, then as the weather becomes more severe the oats will be killed.

Mulch grown in this way will always be found thickest where needed—in bare places and between the rows.

It cannot possibly smother out the plants no matter how rank it grows and is the best for keeping the fruit off the ground in the spring.

One of the greatest advantages in a mulch of this kind is that you are reasonably sure to have no weeds sown with it as it is often the case when using wheat straw.

English farmers raise fine, young cattle by starting the calves on boiled linseed and whey with a run on clean grass.

Protein is found in skim milk, clover, and alfalfa. Corn is also a source of carbohydrates, oats have a little more protein than corn, but not sufficient for the pig.

A NEW SWEET CORN

The New Jersey Experiment Station has, during the past few years, developed some remarkable strains of sweet corn through crossing. One of the best, according to Professor Byron D. Halstead, is the Golden Bantam Premier Cross, planted last year with yellow grains from two twin ears with 12 and 14 rows of kernels respectively.

These matured August 20. The majority of the ears were eight-rowed, thus showing the strong tendency of the cross to keep to the number that



A Stalk of Golden Bantam Premier Sweet Corn.

prevails in Golden Bantam, and frequently met with in Premier.

There were many plants with more than three ears, but these involved ears produced by suckers. Stalks like the one shown in the picture give much promise of bearing liberally early in the season.

Of the whole number of ears saved, one-third were solid yellow. By eliminating the white grains, the chances for the appearance of white kernels in the next crop will be reduced to one in nine.

FLOWING UNDER A HEAVY GROWTH.

In plowing under a heavy growth if the furrow is neatly turned over much of the growth is left in the bottom of the furrow as a layer, and this prevents the passage of moisture and lets the crop suffer in a dry time but if the ground is well disked before plowing and the growth is more or less cut up and mixed with earth, this partially overcomes the difficulty.

If plowed with a mold-board of less than ordinary "dish" the furrow is left more on its edge and when the disk follows the organic matter is better distributed in the soil. With the use of the disc harrow it is not necessary to cover well all trash.—Frank L. Mann, Illinois.

THE BOY'S OWN ROOM

By Katherine Atherton-Grimes.

Too many times the boy's room is the last to be considered. Any corner that will hold a bed and a chair will answer, for "he isn't around the house much anyway and what does he need of anything more?" may be one reason parents why he prefers the barn.

Sisters bright front chamber with its new dress, pretty carpet, and dainty furnishings makes quite a contrast to the back bedroom fitted up with the lame-legged tables and decrepit chairs that have been retired from active labors, where Johnny spends his leisure.

This is manifestly unfair. Sister thinks she owns the parlor too, and that ought to do for her. A boy usually feels that the only place in the house where he is free to do as he likes is his own room. Then let it be as bright and attractive and as much to his taste as possible.

A three cornered cabinet that will fit into a corner is easily made and may be finished like the shelves.

In one boy's room an unused window was turned into a case for guns and fishing rods. It was backed with calico fastened with a cord of brass tacks. Glass doors were used for closing and it made a very pretty appearance when filled with the shining implements of sport.

A good sized writing desk or table, a covered shoe box, a closet with books and shelves and plenty of good books and magazines, will finish a room that any boy might be proud of. If there is no place for his tools, of which every boy needs a supply, a neat chest may be added for these.

With such a room for his very own, what boy will want to spend his evenings away from home? He will be more likely to ask his friends in to help him enjoy it.

TAKE CARE OF THE WOOD LOT.

Don't let any one persuade you to burn over the wood lot. By doing so you destroy the leaves and humus-forming material which nature intended the trees to have.

Cut out only the undesirable and least valuable trees. Keep the chestnuts, hickories, oaks and white pines and remove all crooked and defective trees.

Where several trees stand closely together, or where there are shoots from an old stump remove all but one or two of the best.

Be very careful not to injure the desirable trees when removing those wanted for fuel.

Study your wood lot, its trees and their characteristics and be guided by the knowledge and experience acquired.

If sugar beets are fed at all to horses they should not be given more than once a week and then just previous to a day of rest.

The high prices of pork during the past few years has helped the mutton market.

AN ENJOYABLE NOVELTY.

In the matter of original entertainments, I am going to an enterprising Southern milkman who gave a luncheon to 40 young normal students in his cow-stable. Aside from originality, sanitary progress, which was the object of the entertainment, came in for honorable mention, for the host proved to the satisfaction of the girls,

and the cows, judging from the "moos" of congratulatory voluntered, that his purpose was accomplished. The tables were spread down the middle of the stable between the double row of stalls.

It is a fact that the dogs destroy more sheep in some certain states than all the diseases combined.

Drill in from three pecks to a bushel of seed with from 125 to 150 pounds of a good grade acid phosphate per acre with a wheat drill.

It is a good plan to sow timothy and clover with the buckwheat. Put the timothy seed in the grass seeder box and mix the clover seed with the fertilizer.

The clover seed is thus drilled in rows and a little below the general surface of the ground. This protects the clover from the winter freezing and the soil is in better condition to grow the grass than if it had been sown on the wheat fields in the spring.

—A. J. Legg.

GARDEN SUGGESTIONS.

Cut away the stalks of the plants that have completed their flowering, like the Iris. This for two reasons—to prevent the formation of seed and to remove unsightly features. Large clumps of Iris foliage alone are very pleasing, but the same clumps with old flower stalks showing among them are not at all attractive.

To make Chrysanthemums bushy and compact pinch the branches back from time to time. If this is not done they will be pretty sure to have straggling, awkward shaped plants for which there is no salvation by late pruning. The proper time to train a plant is while it is developing.

Chrysanthemums are also liable to attack from the beetle which does much damage to the Aster—Nicotinae applied promptly and thoroughly is the remedy.

—A. J. Legg.

It is a fact that the dogs destroy more sheep in some certain states than all the diseases combined.

RAISING OF BUCKWHEAT

Buckwheat is a crop that can be sown any time after the danger from frost is over up to about the first of August, with reasonable success.

The buckwheat usually fills best in a rather cool season and in localities where midsummer is very hot it is better to defer sowing the buckwheat until late in the season so as to give from 60 to 70 days for it to mature a crop before frost.

Sixty days is sufficient for a crop to make itself usually.

The grain makes a good feed for almost all animals and it has a nutritive value of near 1 to 7 so it is a fattening grain.

The bloom of the buckwheat plant produces much nectar and there will usually be plenty of bees on hand during the blooming season to gather the nectar.

In some localities in the south, buckwheat was largely superseded by oat crop. Often it is sown after wheat and thus the farmer is enabled to reap two crops from a field in one season instead of allowing his stubble to grow up to weeds after harvest.

The buckwheat crop is a great help in ridging the land of weeds as it is a rapid grower and keeps the weeds back.

If the wheat stubble is turned and sowed to buckwheat and clover there is not much chance for the weeds to mature seeds.

The soil should be plowed and let settle for two or three weeks before the buckwheat is sown.

Drill in from three pecks to a bushel of seed with from 125 to 150 pounds of a good grade acid phosphate per acre with a wheat drill.

It is a good plan to sow timothy and clover with the buckwheat. Put the timothy seed in the grass seeder box and mix the clover seed with the fertilizer.

The clover seed is thus drilled in rows and a little below the general surface of the ground. This protects the clover from the winter freezing and the soil is in better condition to grow the grass than if it had been sown on the wheat fields in the spring.

FOR RINGING HOGS.

In making this crate use 2x4 timber for all cross and upright pieces except the board at the back to fasten the hogs in, the stanchion and the cross piece in front which should be wider to hold the pins, and one-inch lumber is sufficient for this piece. The floor also is one-inch stuff and the upright stanchion is made of 2x6 stuff with



bolts at the bottom and two other bolts to use as pins at the top. The crate is four feet long, 14 inches wide at the bottom and 24 inches wide at the top. Place it in the hog pen door, let the hogs in from the rear and let them out from the front after the rings are adjusted.—E. W. Billman, Mich.

The sheep industry cannot reach perfection until every mongrel dog in the land is exterminated.

CORN THE GREAT SOILING CROP

By Professor Thomas Shaw.

Corn is a great soiling crop, but the same objections obtain to using it for soiling food purposes as obtain to sorghum. The nutriment in it is less prior to maturity than after maturity.

When fed in the form of ensilage it is fed virtually as soiling food, as it is then fed slightly short of maturity and in the succulent form.

For this use no plant in America will equal corn, and this is unquestionably the most economical way of feeding it when it is to be fed for a number of years.

Under such conditions it will abundantly pay to build a silo, relatively narrow and deep, that it may be adapted to the silage-making process.

The advantage of a narrow silo over a wide one for such feeding arises from the fact that less surface is exposed from day to day during the summer when small quantities are fed.

The sowing of corn for soiling on the broadcast plan has but few advocates. It has been condemned chiefly on the ground of the small food value possessed by corn so sown as compared with corn grown in rows so far apart as to freely admit the sunlight.

It is possible, however, that too much has been made of this objection, as the experience of many has shown

that much milk may be obtained by feeding corn grown thus on a given area of land.

It is a very convenient way of growing corn, but it is costly of seed and does not check weed growth so completely as when grown in rows.

For purely soiling food uses, when corn is grown in rows the aim should be to obtain from it as much bulk as is consistent with the free and ample opportunity to cultivate the crop in the usual way.

This means that while the rows should not be closer than three feet, the corn may be grown thickly in the row. To accomplish this the drill may be made to sow seed twice or three times virtually in the same place.

The cutting may begin as soon as the crop is in full tassel, and may be continued until the crop is nearly, if not quite ripe. The season of feeding may be prolonged by planting at least two varieties which mature at different times during a season.

(Editor's Note.—We know farmers who sow quick growing varieties as late as July 10th for use in September and it makes an excellent "filler" in between pasture and grain. For this purpose the ground should be in good tilth and perfectly clean.)

—A. J. Legg.

A DOZEN NOTES ON PIGEON-RAISING.

Inbreeding too much will cause pigeons to "go light".

It takes a good manager to make a profit of \$2 per head each year from a single pair of breeders.

There is one rule always to be remembered: Never mate birds that are hatched in the same nest.

Birds hatched in March are matured and ready for breeding in July and if the surroundings are congenial will continue to breed every month thereafter.

An authority on pigeons says that owing to their intense sense of affection more birds are grieved to death by isolation than die from disease.

Pigeon houses should be carefully examined twice a day to see that everything is in good condition.

In hot weather lice breed in pigeon houses by the million and extra care must be taken to keep down the vermin.

Rats in a pigeon house not only destroy the young but their presence frighten the birds so that they will not thrive.

One of the most successful pigeon raisers we know of feeds his birds nothing but whole corn.

French pigeon fanciers feed millet with a slight mixture of hemp seed, and also every small pease soaked in water. The feeding is done by hand in many cases.

WHY NOT GROW CHICORY?

Chicory is a delicious salad and should occupy a place in every garden. It thrives upon all soils where root-crops can be grown, except clays, very light sandy soils and mucks. It does not require a soil very rich in nitrogen.

The soil must be open and well drained, as it will not thrive in soggy land. The soil should be fertilized rather freely with phosphorus and very little nitrogen, and these fertilizers should be applied to crops grown on the ground the year before, and upon which small grain is grown. Soil on which clover has been turned is not